

23. *KHULNAWA*—A SPECIAL FISHING DEVICE FOR MINNOWS IN THE RIVER GANGA AT PATNA (BIHAR)

(With a plate)

Break-up figures of fish landings from the river Ganga at Patna during the years 1958 to 1966 indicate the larger groups, comprising *Cirrhinus mrigala*, *Catla catla*, *Labeo rohita*, *Mystus aor*, *M. seenghala*, *Wallago attu* and *Hilsa ilisha*, constitute over 55% of the total fish landing (Jhingran *et al.* 1970). From our visits to fishing sites in the river at Patna and also from emphatic comments of the fishermen we gathered that there has been a sharp decline in the catch of the larger groups of fishes in this stretch of the river with *Hilsa ilisha* on the verge of disappearance. Increasing dependance of the local wholesale fish market (Mussallepur Haat) on the imports to the extent of over 60% from other states for the larger fishes is yet another evidence of fall in the catch in the river. The fishermen recall noticing the declining trend with coming up of the Farrakka barrage across the Ganga in the Malda district of West Bengal. While obstructive role of the barrage on the migration of *Hilsa ilisha* is as per expectations, cause of the fall in catch of the other larger fishes is incomprehensible beyond the point that their number might have thinned out in this stretch of the river due to some unobserved subtle ecological changes associated with the installation of physical structures in the river. Naturally, the fishing community dependent on the river Ganga along Patna are obliged to adopt the gears suitable for exploiting the smaller group of fishes whose catch is relatively assured. During the course of a survey of these newly adopted fishing practices, an ingenious device for catching minnows was noticed with quite a large concentration of the same at

Ghaggha Ghat in the Patna Sahib area. The antecedent, structure and operation of the gear-craft were studied by visiting the fishing sites and interviewing the fishermen. The findings are presented in this note.

Nomenclature and history: The device is locally called *Khulnawa* which means an open wale boat. It has been introduced here from the Tarai region of Nepal only a decade ago but now with its proven efficacy to fetch a good catch of minnows, already there are one hundred and odd of the gear-craft operating in the 30 km stretch of the river along Patna. Obviously, the gear-craft does not find mention in any of the earlier descriptions of the fishing methods in the Ganga river system (Hornell 1923, Farupui and Sahai 1943, Anonymous 1949, Job and Pantulu 1953, and Saxena 1966).

Structure: The device (see Plate) has three components namely (1) the boat with one of the wales open (2) a screen platform and (3) a frilled pole.

The boat: It is an ordinary plank built narrow keel-less dinghy with equipointed bow and stern. It is about 7.5 m long and about 65 cm broad at the middle with a shallow depth of merely 25 cm. The wale on one side has a cut out opening, about 5 m long and 12 cm deep. Kathal (*Artocarpus integrifolia*) or Sal (*Shorea robusta*) wood are used in construction of the boat. The boat is kept pitch dark in colour by regular coatings of coal-tar.

The screen platform: It is a closely knit screen of bamboo splinters measuring about 5 m by 0.5 m. To construct it, 40 and odd number of fine flat strips of bamboo are woven

by interlacing them with 5 rows of plastic cords. For reinforcement, the screen is supported by broader splinters of bamboo 70 cm long at intervals of about 50 cm. The extra length of the splinters over the width of the screen project inwards where it is attached to the boat and provide room for fastening with strings to pegs fixed on the floor of the boat. Fixed at the cut portion of the open wale, the screen slopes out so that its free margin is constantly immersed in the water. The screen is always maintained in sparkling white condition by coatings of enamel paint.

The frilled pole: It comprises of one full length piece of 4 to 6 m long bamboo pole with tufts of dry *Save* grass (*Pollinidium angustifolium*) drooping as frill along $\frac{3}{4}$ th of its length. To make the outfit, a tuft of 4 to 6 dry blades of the grass is tied to the narrower end of the pole, then while half the length of the tuft is twisted into string, the other half is left loose. The next tuft is tied to the portion of the first tuft and likewise initial half of it is twisted into string and the remaining part droops as frill. Series of the tufts of the grass are wrought in the fashion to make a drooping frill along the desired length of the pole and the last tuft is twisted into string and fastened to the pole. The whole frill remains hanging from the pole by the tying of it at intervals of about 50 to 60 cm.

Operation: *Khulnawa* is operated by two men, keeping the boat always parallel to the bank of the river at a distance little more than the frilled pole. The side of the boat with open wale and the screen faces the bank. The man sitting at the stern rows the boat and manoeuvres the frilled pole while the other one sitting at the bow helps in rowing and attends to the catching operation. The manoeu-

ring of the frilled pole is so done as to keep the free edge of the drooping grass just overhanging the surface of the water. Surface inhabiting minnows that happen to be schooling in between the boat and the bank are scare-driven towards the boat by the looming shadow of the frilled pole. In the dark, the bright white screen jutting down to the water from the cut wale, possibly, gives the fishes an illusion of flowing stream and in their attempt to negotiate it, they leap into the boat-hold.

Khulnawa's catch efficacy is confined to night time with better results in moonless nights having calm weather. Possibly, such conditions favour the illusionary effect. The best operation period in a year has been experienced as February to April, obviously owing to favourable ecological condition of the water like higher transparency and plankton growth leading to surface foraging by the fishes.

When *Khulnawa* is taken out for fishing, it is operated intermittently althrough the night covering a distance of 5 to 10 km from the point of sail. The catch during a single night varies from 15 to 50 kg with the high figures restricted between middle of March to end of April. The species featuring in order of abundance are *Oxygaster bacaila*, *Gadusia chapra*, *Setipinna phasa*, *Aspidoparia morar* and smaller species of *Puntius*. Major or medium carps or catfishes are rarely caught.

Khulnawa seems to be a fishing device worth trying in lakes, reservoirs and other rivers with favourable ecology.

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(A) The components of *Khulnawa* when not in operation. Note the screen platform kept in rolled condition on the boat aground, the two frilled poles kept tucked on the same boat, and the *dinghy* in full view in water. (B) The components of *Khulnawa* being set together for a fishing round. (C) A close-up view of the screen platform fixed up in the boat for start of operation.